IEEE **UNITED STATES ACTIVITIES**

Promoting Career and Technology Policy Interests of Electrical, Electronics & Computer Engineers

IEEE-USA Office
(202) 785-0017

"Information Line" Recording
(202) 785-2180

FAX
(202) 785-0835

November 19, 1993

Mr. William Caton
Office of the Secretary
Federal Communications Commission
1919 M St., NW, Room 222
Washington, D.C. 20554

Re: ET Docket No. 93-266 - Review of the Pioneer's Preference Rules

Dear Mr. Caton:

Transmitted herewith, on behalf of the Institute of Electrical and Electronics Engineers, Inc., United States Activities (IEEE-USA), is an original plus nine copies of the comments in response to the Commission's Notice of Proposed Rule Making in the matter of Review of the Pioneer's Preference Rules.

If there are any questions, please contact Deborah Rudolph at the IEEE-USA Washington Office at the address and telephone number listed.

Sincerely,

Charles K. Alexander, Ph.D., P.E.
Vice President, Professional Activities
and
Chairman, United States Activities Board

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C.

In the Matter of	)	
	)	
Review of the Pioneer's Preference Rules	)	ET Docket No. 93-266

COMMENTS OF THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC. -- UNITED STATES ACTIVITIES

The Institute of Electrical and Electronics Engineers, Inc. -- United States Activities ("IEEE-USA") submits these comments in response to the Federal Communications Commission's *Notice of Proposed Rule Making* ("NPRM") in the above captioned proceeding. These comments were developed by IEEE-USA's Committee on Communications and Information Policy and represent the considered judgement of a group of U.S. IEEE members with expertise in the subject field. IEEE-USA promotes the career and technology policy interests of the 240,000 electrical, electronics and computer engineers who are U.S. members of the IEEE.

These comments are late-filed due to a combination of the unusually short pleading cycle in this proceeding, and the time required to complete IEEE-USA's review processes. If waiver of any FCC rule is necessary for the Commission's consideration of these comments, such waiver is hereby respectfully requested.

I. Introduction

The NPRM undertakes a complete review of the merits of pioneer's preferences in light of FCC's new authority to issue licenses through competitive bidding. The pioneer's preference rules now in place provide a mechanism by which an applicant may obtain a license to provide a new spectrum-related service or technology, if that applicant shows a significant role in the technology's development. The intent of the rules is to foster development of new communications technologies and services to the public by reducing the risks innovators otherwise face in obtaining a license, either by random selection or comparative hearing. The FCC now seeks, as one option, to eliminate the pioneer's

preference on the basis that the establishment of competitive bidding authority creates a new dynamic for the assignment of licenses.

II. IEEE-USA Supports the Pioneer's Preference

IEEE-USA supports continuation of the pioneer's preference rules as they generally stand, and believes the rules are consistent with the 1993 Omnibus Budget Reconciliation Act ("Act"). The pioneer's preference rules appear consistent with the Budget Act's requirement that the Commission provide economic opportunities for small businesses to participate in spectrum-based services.[1] IEEE-USA believes the elimination of the pioneer's preference would adversely impact small businesses, and undermine the contribution small businesses make to technological innovation and job creation in high-tech communications and information sectors.

It may be appropriate, however, for the Commission to clarify or revise certain aspects of the pioneer's preference rules, or, for the benefit of prospective pioneer's, express any publicly unarticulated Commission policies used to evaluate pioneer's preference requests. In the interest of possible improvement of the pioneer's preference rules, IEEE-USA's Committee on Communications and Information Policy is conducting an analysis of the Commission's pioneer's preference decisions to-date. The results of that analysis are not available now, but may be made available to the Commission in the future if IEEE-USA believes the Commission would benefit.

IEEE-USA is not judging the merits of the pioneer's preference requests now before the FCC, and IEEE-USA is not offering an opinion on the Commission's tentative or final pioneers' preference decisions. The pioneer' preference, however, has spurred many technological innovations, including those by small businesses, that might have been delayed or otherwise not achieved due to lack of incentive. The Commission received 96 pioneer's preference requests in its Personal Communications Services Docket (GEN Docket No. 90-314). The Commission's Office of Engineering and Technology accepted 57 of these applications for filing. Many innovative proposals received were from small businesses.

Companies of all sizes contribute to technological innovation. A surprising number of technological innovations, however, can be

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[1]Omnibus Budget and Conference Report, §§ 309(j), 309(j)4.

credited to small businesses. An FCC Advisory Committee report finds that 55 percent of all technological innovations are attributable to firms with less than 500 employees.[2]

The same FCC Advisory Committee finds that small firms innovate at per-person rate twice that of large firms, spend more on research and development, and translate research and development spending into new products more efficiently than large firms.[3] The FCC postulates that with competitive bidding, would-be pioneer's preference applicants can instead advance their technologies by finding investors willing to place the highest bid for spectrum, and that the bid will somehow allow for the value of the innovation. Funding for small businesses, though, has traditionally been difficult. Without a track record, entrepreneurs often have difficulty obtaining start-up funds. Lenders prefer to work with multiple-party owners.[4] Technologist's expertise is generally in technology, not fund-raising or marketing.

Aside from the matter of U.S. technological progress, the impact on small business is a jobs issue. Hundreds of thousands of jobs have been cut from major multinational companies in the last two years. This has led to record-high unemployment, even among IEEE members. These jobs are lost through many factors, including, paradoxically, the efficiencies provided by communications and information technology developed by IEEE members. Large companies downsize to enjoy the flexibility of smaller ones. Market trends suggest increasing concentration in the telecommunications industry.[5] These factors mean that many jobs lost today will never be filled, and must be replaced by new ones.

As indicated by the attached article, which recently appeared as

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[2]*Report of the FCC Small Business Advisory Committee to the Federal Communications Commission Regarding Gen. Docket 90-314*, September 19, 1993, p. 5, (hereinafter, *Report*), citing *Characterizations of Innovations Introduced on the U.S. Market in 1982*, U.S. Small Business Administration.

[3]*Report*, p. 5, citing *Joint Petition for Further Rulemaking of Advanced Mobilecomm Technologies, Inc., and Digital Spread Spectrum Technologies, Inc.*, in Gen. Docket 90.314, Exhibit #3, pp. 12,13.

[4]*Report*, p. 3.

[5]*Report*, p. 3.

part of a special issue of *IEEE Spectrum* Magazine dealing with high-tech job issues, smaller companies not only weathered the recent recession better than larger ones, they are leading the recovery.[6] They are growing, even as big companies are announcing massive layoffs. An FCC Advisory Committee study finds that "small businesses were responsible for 33.1 percent of employment and 45.7 percent of the growth in the communications sector from 1986-1988, and accounted for 90 percent all new jobs created in fiscal year 1990."[7] The *IEEE Spectrum* article also makes clear that the growth of small businesses is a global trend.

III. Conclusion

The FCC should keep its pioneer's preference rules intact or with modification. Such a decision will be good for small businesses, good for technological progress, and good for employment.

Respectfully submitted,

Charles K. Alexander, Ph.D., P.E.

Vice President, Professional Activities
Chairman, United States Activities Board

November 19, 1993

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[6]Appendix, *Small is Beautiful*, IEEE Spectrum, August, 1993, p. 24.

[7]*Report*, p. 5, citing *Statement of PCS Action, Inc.*, submitted to the FCC Small Business Advisory Committee, May 27, 1993, p. 1.

APPENDIX

Small is beautiful

The December 1990 *IEEE Spectrum* report, "'90s employment: some bad news, but some good," noted that small high-tech companies were still growing, some very rapidly, despite the overall grim picture in U.S. engineering employment among hardware makers and in the Northeast.

In October 1990, the ongoing survey by Corporate Technology Information Services Inc. (CorpTech), in Woburn, MA, had shown more hopeful signs: in the preceding 12 months some 22 000 high-tech companies with fewer than 1000 employees had reported an average of 5.3 percent expansion in their employment. One in six grew at more than 25 percent. At that time, so many of them were sprouting jobs at such a pace that they were partially mitigating the effects of the massive cuts at the big corporations.

CorpTech now has a database of 24 585 U.S. technology manufacturers with fewer than 1000 employees. Its survey reveals that smaller companies generally weathered the recession better than larger ones, and are leading in the recovery. Now they are growing again, even as big companies are still announcing massive layoffs.

In June, CorpTech reported that employment at the smaller high-tech companies had expanded at an average of 1.2 percent since June 1992. That translates into 16 677 new jobs, generating sales opportunities for their suppliers. More than one firm in seven has grown by more than 25 percent in the last year. Regionally, the fastest growth (4 percent or more) was in the southeastern states, northern New England, and the northwestern and southwestern states; the loss leader by far was southern California, where small and midsized companies shrank by an average of 7.3 percent.

The trend favoring small and midsized companies is not unique to the United States. In Canada, "smaller niche companies are faring better" than bigger companies, said Fiorenza Albert-Howard, public affairs coordinator for the IEEE Canada Region in Victoria, BC.

In Germany, according to the annual job recruitment study conducted by Verein Deutscher Ingenieure, the Association of German Engineers, of 16 major German publications, 44 742 job openings for engineers were advertised in 1992, down 12 percent from 50 627 advertised in 1991. Significantly, most of those ads were from smaller companies. The steepest drop in recruitment ads was noted in large corporations, which published only some 1940 job ads in 1992, scarcely one-fifth the number (9280) of ads they placed in 1991.

Even more significant, for the first time this century, big companies—including IBM Corp. and General Electric Co.—are restructuring themselves into independent business units to look and act like a federation of nearly autonomous companies, complete with individual balance sheets. Among the reasons big corporations often cite for massive layoffs is the desire to "streamline" and to "downsize" to become more flexible and responsive to markets.

Moreover, with the trend toward more customized products and with cost-effective fabrication facilities now available under contract for smaller production runs, smaller manufacturing companies can compete with larger companies, now stripped of the advantage of enormous economies of scale. —*T.E.B.*

Growth of U.S. high-tech employers of fewer than 1000*

	[illegible]	1992	June 1993	[illegible]	[illegible]
Totals					
Growing annually at over 25%	510	24 450	36 268	11 818	48.3%
Growing annually at under 25%	355	41 397	46 256	4 859	11.7%
Stable	1976	147 624	147 624	0	0%
Shrinking	473	48 771	38 388	-10 383	-21.3%
Failures	63	3 153	0	-3 153	-100.0%
June '93 survey totals	3377	265 395	268 536	3 141	1.2%
June '92 survey totals	3037	335 131	334 929	-202	-0.1%
By industry					
Biotechnology	129	9 938	10 696	758	7.6%
Medical	195	19 572	21 038	1 466	7.5%
Computer software	988	40 700	43 600	2 900	7.1%
Pharmaceuticals	63	8 294	8 722	428	5.2%
Chemicals	123	12 891	13 290	399	3.1%
Advanced materials	218	26 791	27 017	226	0.8%
Environmental	256	26 684	26 874	190	0.7%
Test measurement	396	37 390	37 585	195	0.5%
Holding companies	213	38 143	38 218	75	0.2%
Manufacturing	431	41 618	41 564	-54	-0.1%
Telecommunications	271	28 562	28 469	-93	-0.3%
Computer hardware	566	41 477	41 075	-402	-1.0%
Energy-related	153	16 968	16 685	-283	-1.7%
Transportation	103	16 409	16 014	-395	-2.4%
Factory automation	369	36 544	35 466	-1 078	-2.9%
Subassemblies, components	630	73 986	71 563	-2 423	-3.3%
Lasers optics	186	14 708	14 054	-654	-4.4%
Defense-related	60	9 182	8 770	-412	-4.5%

Source: CorpTech, Woburn, MA
* Many companies are in more than one industry.